

Introducing the Hood Canal Bridge Rehabilitation Project and the Port Angeles Graving Dock Program

*Presentation to the
Transportation Performance Audit Board*

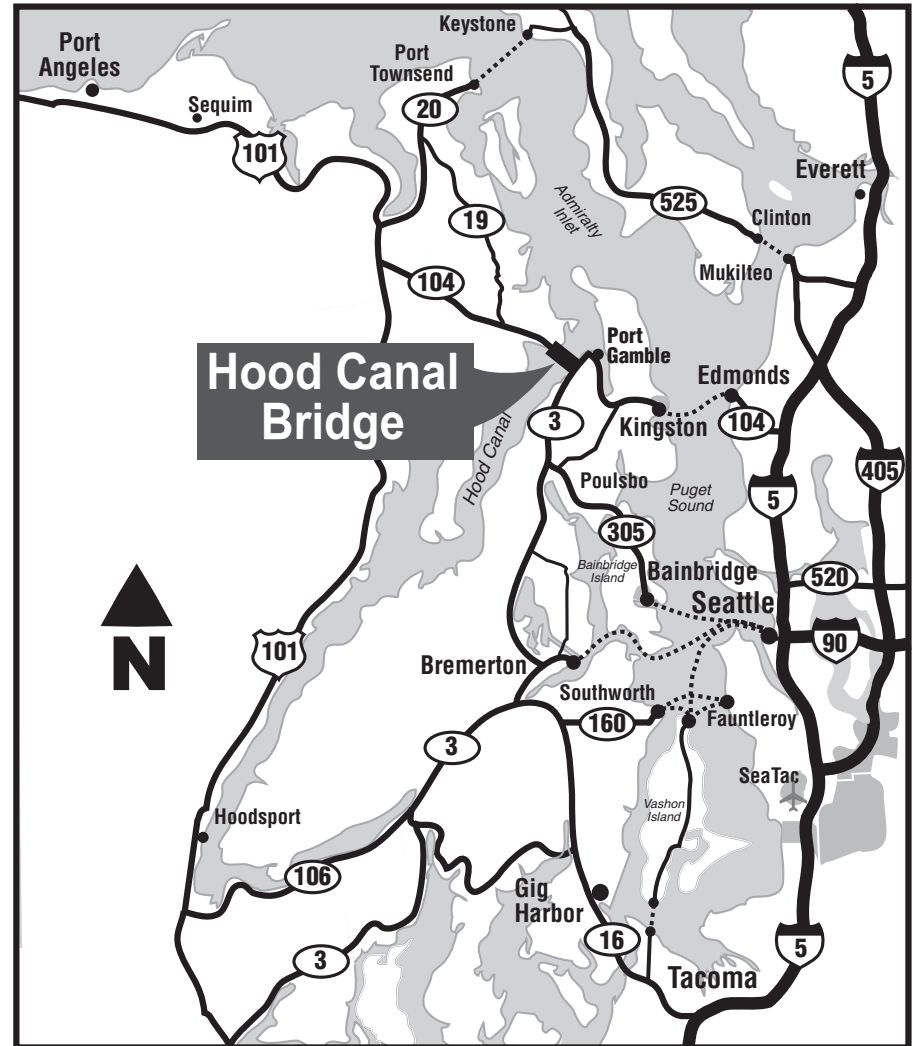
Douglas B. MacDonald
Secretary of Transportation

March 31, 2005



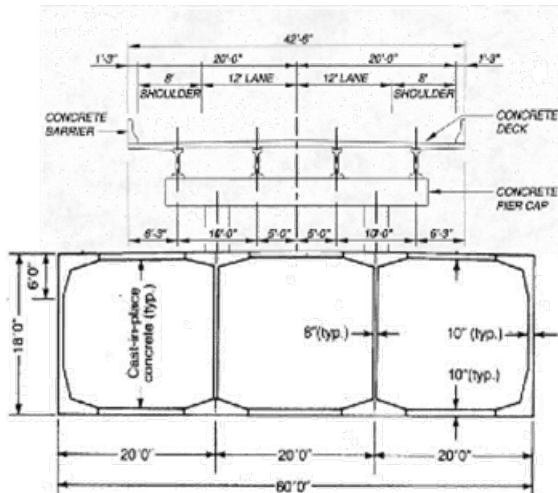
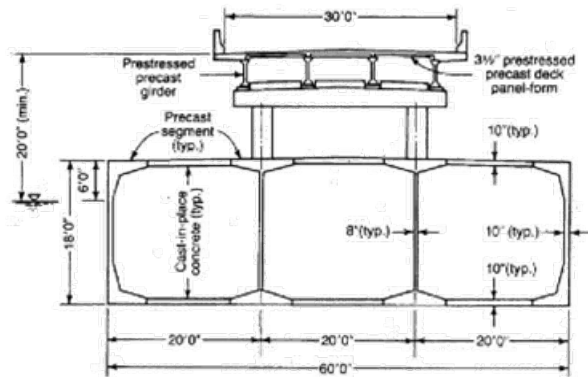
Why is WSDOT Rehabilitating the East Half of the Hood Canal Floating Bridge?

- **1961 Original bridge opened**
 - Vital transportation link between Northern Olympic Peninsula and Kitsap, King, Pierce and Snohomish Counties
- **1979 West half sinks in storm**
- **1982 New west half opened**
- **1997 East half plan developed based on:**
 - Draw span unreliability
 - Aging concrete and corroding steel
 - Storm vulnerability
 - Substandard roadway
- **Construction planned for 2003-2007 bienniums**



What are the Elements of the East Half Replacement Plan?

Pontoon Cross Sections



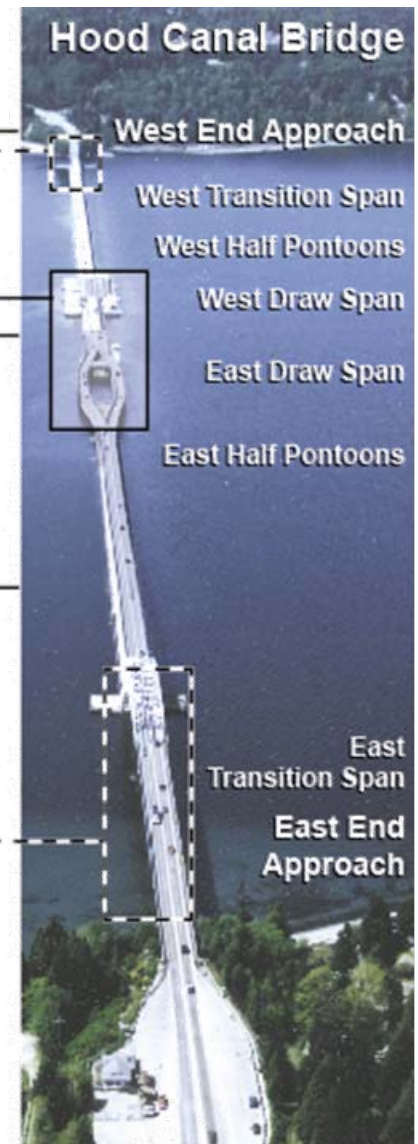
- Widen west half approach roadway and install new generator and maintenance buildings

- Revise west half draw span controls and guide rollers
- Install buildings on east half draw span assembly
- Install and test operating machinery, power, and controls

- Fabricate 14 new pontoons with superstructure
- Rehabilitate three pontoons and replace their superstructure
- Remove existing east half pontoons
- Install the new east half pontoons
- Fabricate 20 new anchors
- Install new anchors and anchor lines

- Replace fixed east and west approach spans
- Replace existing east and west transition spans

Work in the program includes not only the replacement of transition spans at both ends of the bridge, the replacement of east half pontoons and anchors, but also safety improvements to the land-side bridge approaches at both ends of the span, and various mechanical and control system improvements.



Where Could Pontoons and Anchors Be Built?

- Not Blair Waterway
- Probably not Duwamish Graving Dock
- Other potential sites examined
- Perhaps Concrete Tech in Tacoma
- In 2000, WSDOT optioned space at Concrete Tech to protect viability of competition by assuring any contractor could use that existing graving facility
- In the NEPA Environmental Assessment in March/May 2002, WSDOT stated the preference that the contractor use an existing permanent facility rather than have WSDOT or the contractor develop a new facility



Pontoons and anchors at Blair Waterway Graving Dock



Hood Canal Bridge pontoons are floated into position



Pontoon anchors

The Permitting Process For The Project Caused WSDOT To Change Its Approach

- In March 2002, the Hood Canal Bridge project was selected by TPEAC as one of its three “pilot projects” for permit streamlining
- WSDOT’s process for obtaining approvals and permits for the project was folded into a multi-agency “Inter-Disciplinary Team” with strong focus on fish and aquatic concerns
- In the work of the Inter-Disciplinary Team in the period June, July and August, 2002, WSDOT made a course change in how the contract for the pontoons/anchors would treat the graving dock, abandoning the earlier preference

Membership of TPEAC Hood Canal Bridge Inter-Disciplinary Team

- Washington State Department of Transportation
- Department of Ecology
- Department of Fish and Wildlife
- Department of Natural Resource
- Kitsap County
- Jefferson County
- NOAA Fisheries also referred to as the National Marine Fisheries Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Coast Guard
- Federal Highway Administration

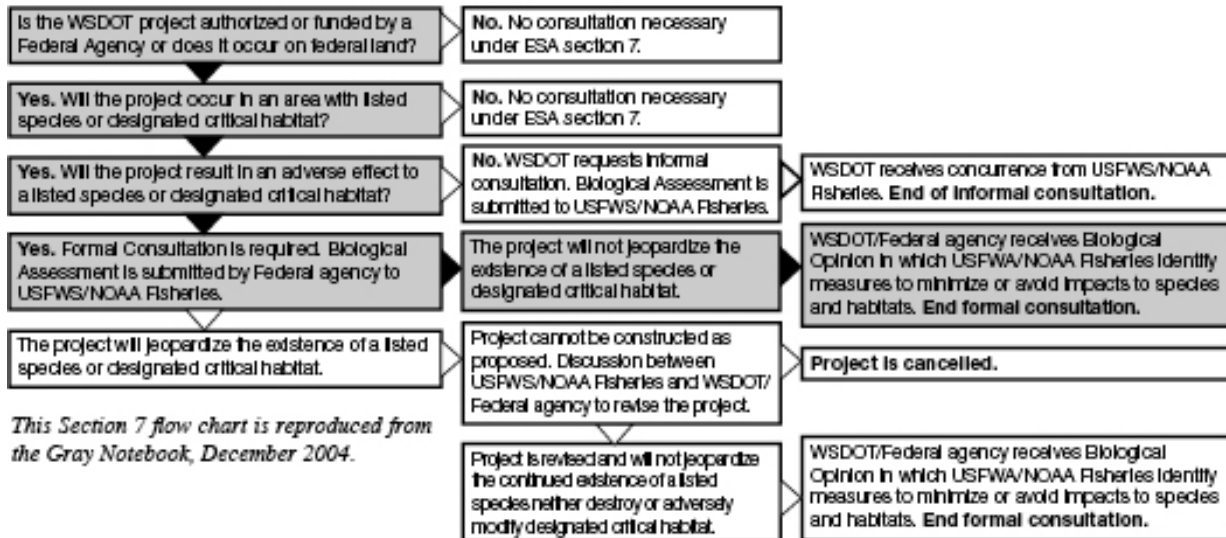
Course Change Was Driven By Submittal Requirements for the Endangered Species Act

- Completion of ESA Section 7 consultation must precede all other key permits
- Unwise or impossible to bid contract without key permits and terms
- Graving dock location and operation **must** be specified for Section 7 consultation
- This required WSDOT to specify the graving dock strategy so permits could be issued before bidding the contract

ESA Consultation Process for the Hood Canal Bridge Project

Endangered Species Act Section 7 consultation Process with the U.S. Fish and Wildlife Service and NOAA Fisheries (National Marine Fisheries Service).

The black arrows show the course taken by the Hood Canal Bridge project through the Section 7 consultation flow chart.



Key permits dependent upon completion of ESA Section 7 consultation.

- U.S. Army Corp of Engineers under Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act
- U.S. Coast Guard under Section 9 of the Rivers and Harbors Act
- State Department of Ecology Water Certificate under Section 404 of the Clean Water Act.

When ESA Requirements Became Clear In June And July 2002, Environmental Review Process Was Already Underway With Intent To Advertise The Project In December 2002

- National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) reviews were completed just as TPEAC team was forming
- Section 106 review for cultural and historical resources had already begun
- Earlier ESA comments from State Department of Fish and Wildlife were already raising concerns about operation of Concrete Tech facility and moorage of pontoons for post-launch construction of roadway superstructure
- WSDOT began to look for additional graving dock sites or options as issues with ESA in general and Concrete Tech in particular began to loom

The Port Angeles Site Was Attractive For Development Of A Graving Facility

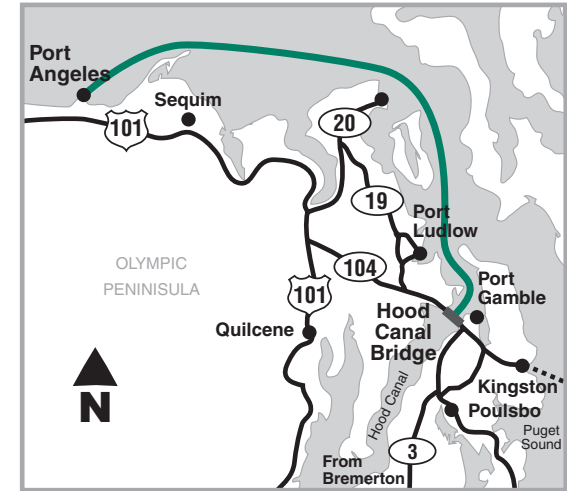
- Good water access
- Good terrain for development
- No NIMBY
- Good workforce
- Good land access
- Enthusiastic business and civic support



Port Angeles Site Emerged From WSDOT And Inter-Disciplinary Team As The Solution To Endangered Species Act Concerns and Construction Practicalities

Development of large pontoon graving dock in Port Angeles offered:

- Equal or better fabrication process choice as compared to Concrete Tech at comparable cost
- Easier ESA permitting solution
- Strong appeal to Port Angeles economic development advocates
- Double duty appeal to WSDOT: a solution to the very hard problem of where a much larger future project of SR 520 replacement bridge pontoons could be built



The SR 520 bridge replacement project is a major look-ahead concern

Under Schedule Pressure, Permitting Review At Port Angeles Ran Concurrently With Site Selection And Contract Bidding Process

October – November 2002

- Port Angeles campaign for site selection
- Section 106 cultural resources review begun
- Contaminated soils review conducted
- Decision for Port Angeles – November 19, 2003

December 2003

- ESA and other key permit applications completed.

January – February 2003

- Permits begin to issue – including City of Port Angeles Shoreline Development Master Plan Permit
- Section 106 cultural resources review completed. SHPO and Tribe accept conclusion and endorse “monitoring” recommendation
- WSDOT advertises for bids – February 24, 2003

March – April 2003

- NEPA and SEPA documents for adding Port Angeles to the project are completed
- Washington Shipyard Coalition emerges as strong opponent to Port Angeles graving dock but legislative and political campaign rebuffed by Port Angeles civic and legislative leadership

May – June 2003

- Section 7 consultation for Endangered Species Act is completed by U.S. Fish and Wildlife Service and National Marine Fisheries Services
- Major permits issue from Department of Ecology, U.S. Army Corps of Engineers, U.S. Coast Guard
- WSDOT opens bids from three competing joint ventures – June 18, 2003
- WSDOT awards contract to Kiewit-General Joint Venture – June 30, 2004

How Was The *Cultural Resources Survey* Conducted And What Did It Conclude?

- WSDOT “on-call” cultural resources consultant: Western Shore Heritage Services
- Consultant was asked to scope survey to meet Section 106 requirements
- Consultant conducted “background investigation” on the site

“Tse-whit-zen was a village site at the base of Ediz Hook in the general vicinity of the project area. The village was a large and important village . . . of considerable importance in aboriginal times.”

“Every village had a cemetery, generally on a sandpit, but occasionally in the woods. ”

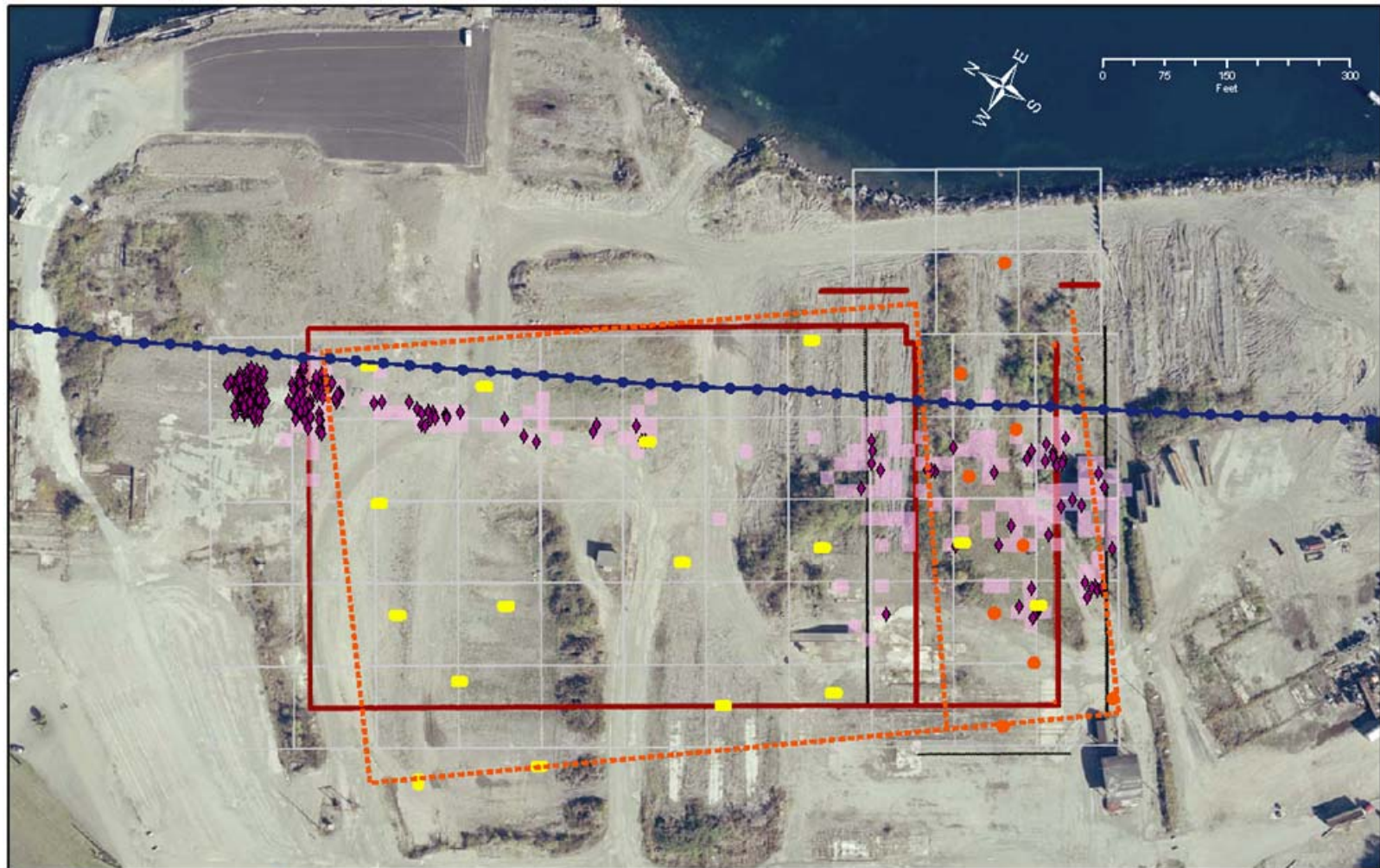
“Cemeteries were typically near the beach, not a great distance from their dwellings. They fronted the water. The graves were arranged irregularly. The cemetery associated with Tse-whit-zen was in the general vicinity of the mill complex, although the precise location is not known.”

- Consultant conducted four day “field investigation” at the site
- Consultant prepared report and proposed a Monitoring Plan

“No evidence of significant prehistoric or historic archeological resources was found within the boundaries of the proposed project site during these investigations...based on the results of this survey, the probability for the occurrence of buried archeological resources is determined to be low; however, it is recommended that an archaeological monitor observe ground disturbing activities during construction of the Graving Dock Facility in those areas where excavations will exceed four feet in depth.”

“In the unlikely event that ground-disturbing or other construction activities result in the inadvertent discovery of archaeological resources, work should be halted in the immediate area . . . until such time as further investigation and appropriate consultation is concluded. In the unlikely event of the inadvertent discovery of human remains, work should be halted in the area, the discovery covered and secured against further disturbance, and immediate contact established with the appropriate law enforcement personnel, the office of the Washington SHPO, and authorized tribal representative. ”

What Was Found, And Missed, In The *Cultural Resources Survey*?



- ◆ Intact Burials Yet to be Discovered
- General Location of Fragmentary Human Remains Yet to be Discovered
- Auger Sample
- Backhoe Trench Sample
- Sampling Plan Sheet Pile (Approximate)
- Sheet Pile
- Historic Shoreline (Approximate)

Data Sources / Notes -
 Site Features:
 Orthophoto:
 Burials:
 Human Remains Vicinities:
 Archeological Sampling:

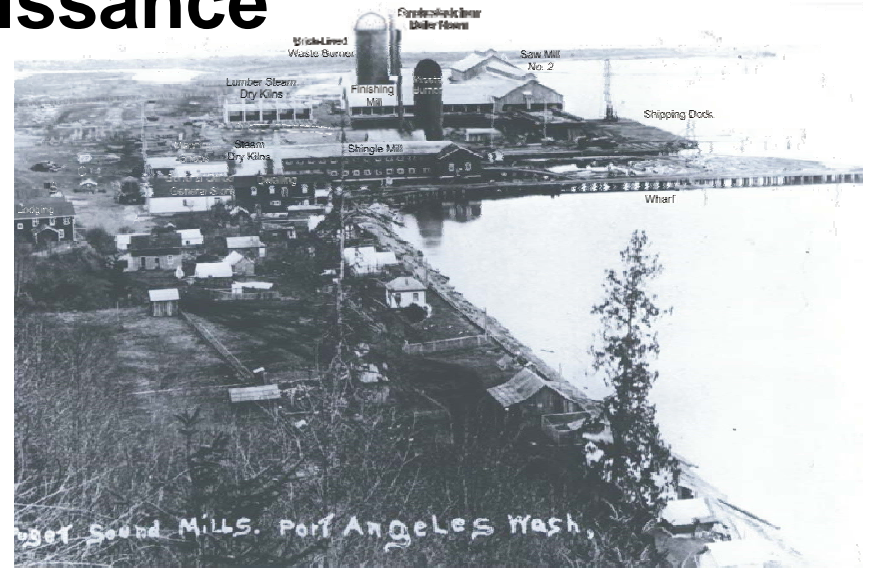
WSDOT Project Office 2/25/2005
 WSDOT 10/15/2002
 Larson Anthropological and Archeological Services, Ltd 3/2/2005
 and Western Shore Heritage Services 2/22/2005
 Based on findings to 12/7/2004 from Larson Anthropological and
 Archeological Services, Ltd and Western Shore Heritage Services.
 (Isolates found in stockpiles were not mapped.)
 WSDOT Project Office 2/25/2005

**Nov / Dec 2002 Archeology Sampling
 Hood Canal Bridge Graving Dock Site
 Port Angeles, Washington**

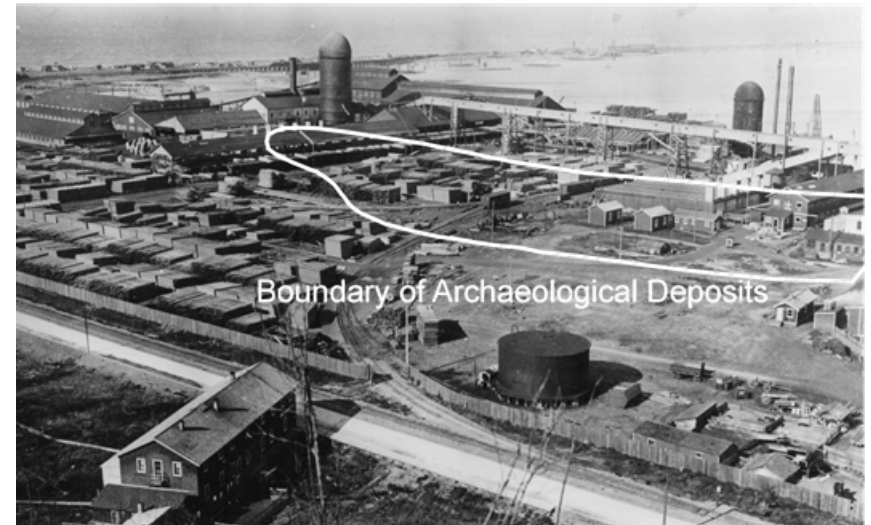
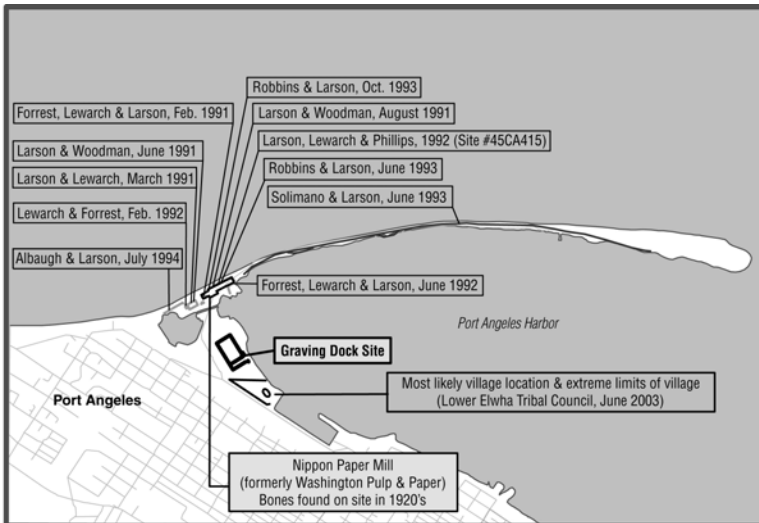
Photo Date: Oct 15, 2002

The Site Was Not Free Of Challenges to Archaeological Reconnaissance

- Archeological and cultural material was concealed by massive site alteration and filling and some disturbances of historic land forms
- Local knowledge did not become accessible to consultant or WSDOT
- Little specific help from previous studies



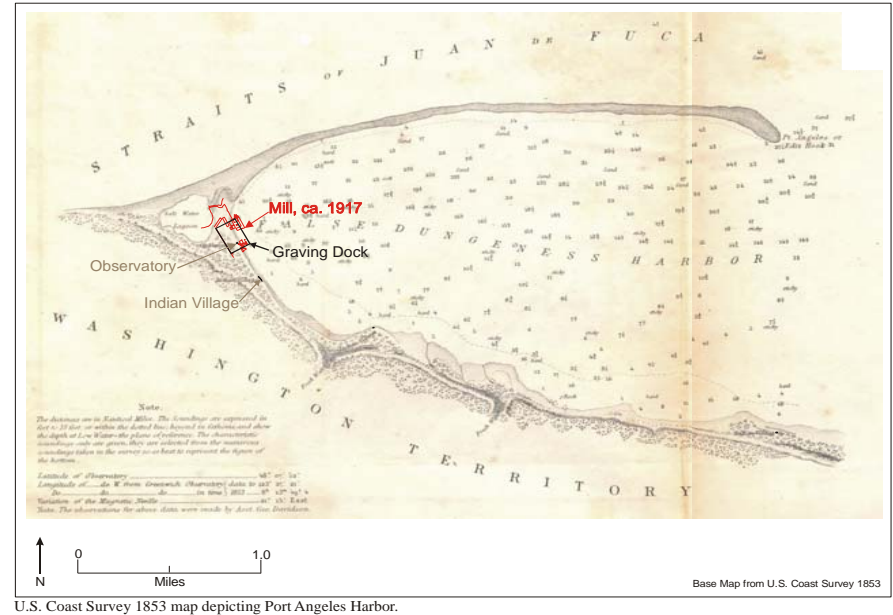
Puget Sound Timber and Mill Company, 1919



Questions Nevertheless Are Appropriately Raised

- Limited scope of background investigation
- Lack of outreach for local knowledge
- Lack of geomorphology study to locate old beach line
- Lack of thoroughness of field work
- Possible misinterpretation of materials observed in field work

Total cost of the Cultural Resources Survey was less than \$7,000.



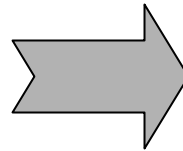
Overview of Olympic Shipbuilders yard during World War II, in 1943 (courtesy of Peninsula Publishing, Incorporated).



1914 view of Port Angeles (view from SE) with approximate location of graving dock superimposed.

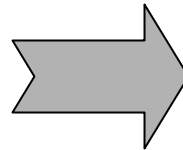
What Happened with the *Cultural Resources Survey*?

- WSDOT submitted the survey report to State Office of Archeology and Historic Preservation (State Historic Preservation Officer)
- State Office of Archaeology and Historic Preservation concurred
- WSDOT sent the report to Lower Elwha Klallam Tribe. The Tribe “basically agree(d)” with its findings
- Monitoring Plan was prepared by the consultant and approved by the State Office of Archaeology and Historic Preservation in April 2004. The plan was sent to the Tribe but no comments were received



“We concur with [Western Shore’s] recommendations and your findings that no historic properties are in the area of potential effect. Thus, no historic properties are affected. We also concur with the proposed monitoring.”

Letter from Mr. Robert Whitlam, State Archaeologist, January 14, 2003



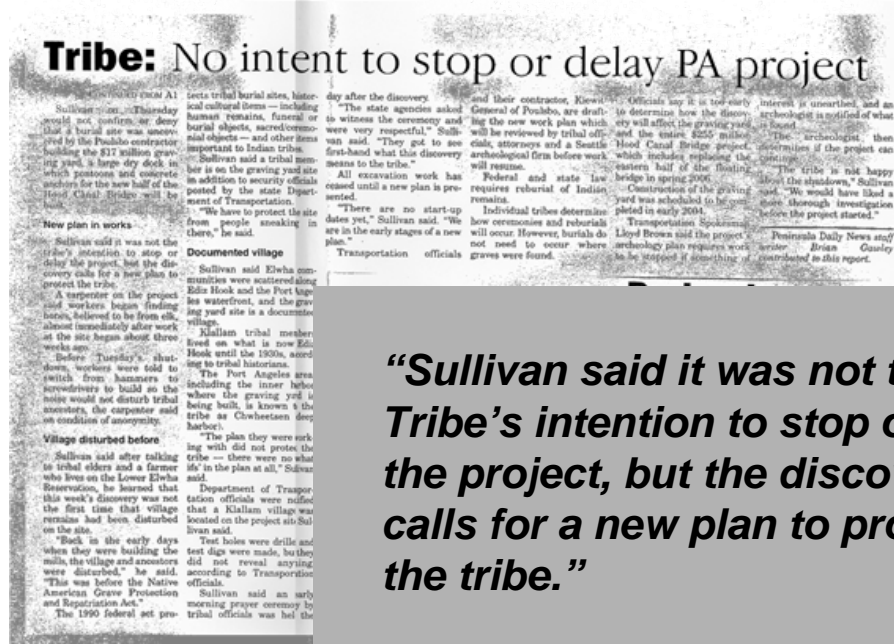
“Our staff has reviewed this document and basically agrees with its findings. The proposed site within Port Angeles has clearly been significantly altered, however its proximity to known Klallam village sites and traditional use areas argues strongly for caution.

The tribe agrees with the WSHS recommendation to develop an archeological resources monitoring plan and would like to receive a draft copy of this plan to review prior to construction. We realize that this project is progressing on a fast track schedule and will make every effort to respond with comments in a timely manner. We agree that archaeological specialists selected in consultation with the Tribe must be on site during excavation activities that exceed 4 feet. In the unlikely event of an inadvertent discovery of archaeological materials at any depth, work will be stopped and contact made with the tribe in addition to the Washington SHPO”

Letter from Mr. Dennis Sullivan, Tribal Chair of the Lower Elwha Klallam Tribe, February 5, 2003

In August, 2004, Construction Starts And Archaeological Deposits Are Immediately Found

- August 6, 2003 Ground breaking
- August 16, 2003 First discovery of archaeological material
- August 19, 2003 Monitoring program goes into effect with Western Shore and Tribal representatives in attendance at the site
- August 26, 2003 Work suspended
- August 30, 2003 Tribal Burning Ceremony



Back to Section 106 Under “Inadvertent Discovery” Provisions of National Historic Preservation Act Regulations

- Site would be classified as eligible for listing on National Register of Historic Properties
- State Historic Preservation Officer and Federal Highway Administration would negotiate a Section 106 *Memorandum of Agreement*
- The *Memorandum of Agreement* would incorporate a detailed *Site Treatment Plan* to define the archaeological work program
- Tribal consultation required by the process would be bound to follow “government-to-government” protocols under State of Washington Centennial Accord and FHWA and WSDOT tribal consultation policies

What did we know when the project was suspended for Section 106 review under “inadvertent discovery” regulations

- Archaeological deposits (shell midden with evidence of human occupation) lay under historic fill in portions of the site
- Fragmentary human skeletal remains had been identified in midden and in historical fill deposits. Isolated fragmentary remains were found in four discrete locations, some exposed to the surface and some exposed in trenches that were placed in attempt to discover the extent of archaeological deposit. No fragments constituted an intact burial



♦ Intact Burials Yet to be Discovered
 General Location of
 Fragmentary Human Remains
 Yet to be Discovered
 ● Known Human Remains
 From Site Treatment Plan
 Initial Archeology Areas

Data Sources / Notes -
 Site Features:
 Air Photo:
 Burials:
 Human Remains Vicinities:
 Human Remains to Mar 04:

WSDOT Project Office 2/25/2005
 WSDOT 3/2/2004
 Larson Anthropological and Archeological Services, Ltd 3/2/2005
 and Western Shore Heritage Services 2/22/2005
 Based on findings to 12/7/2004 from Larson Anthropological and
 Archeological Services, Ltd and Western Shore Heritage Services.
 (Isolates found in stockpiles were not mapped.)
 Larson Anthropological and Archeological Services, Ltd. 2004 (Site Treatment Plan)

Known Human Remains - March 2004 vs. January 2005

Hood Canal Bridge Graving Dock Site
 Port Angeles, Washington

Photo Date: March 2, 2004

Development of Site Treatment Plan

- The work of preparing the Site Treatment Plan was commenced by Western Shore as consultant to WSDOT. The new site assessment plan was prepared in September 2003 under constant review by Larson Anthropological Archaeological Services, Ltd.
- In January, 2003, WSDOT shifted the work to Larson Anthropological Archaeological Services, Ltd.
- The Site Treatment Plan was completed in February 2003
- During this period the parties also negotiated the Section 106 Memorandum of Agreement and a separate mitigation agreement and release between the Tribe and WSDOT
- This work had extensive encouragement and support from a wide variety of civic and elected leaders at every level
- Agreements were signed in March 2004

More than sixty individuals directly participated in negotiations and tribal consultation of the March 2003 agreements.

WSDOT

Office of the Attorney General

Governor's Office

Congressional members and staff

Representatives of Kiewit-General, J.V.

State Office of Archaeology and Historic Preservation

Federal Highway Administration

U.S. Army Corps of Engineers

Lower Elwha Klallam Tribe

Local and Washington, D.C. Legal Counsel to the Tribe

Archaeology Consultants to the Tribe

Archaeology Consultants to WSDOT

Federal Advisory Council on Historic Preservation

Memorandum of Agreement – Provided NHPA Section 106 Framework

- Parties would work together to provide public information while protecting sensitive information about archaeological recoveries.
- Archaeological monitoring during the construction to allow the project to move ahead while permitting the identification and removal of all archaeological discoveries and human remains.
- Scientific analysis to allow for public knowledge while still protecting information of a spiritually sensitive nature.
- Parties would assist the Tribe in locating land for reinterment of human remains and WSDOT would assume costs of reburial.

Site Treatment Plan -- Provided for the Further Archaeological Work

- Research to identify the nature and extent of the archaeological site.
- Recovery of culturally and historically significant artifacts and recordation of important features (“data recovery”) from identified sample locations across the site.
- Provisions for appropriate and respectful procedures whenever human remains were encountered.
- Scientific analysis, reporting, preparation of public information and educational materials.

WSDOT – Tribe Mitigation Settlement Agreement and Legal Release

- Lump sum mitigation payment of \$3.4 million to cover cost of purchase of reburial property, costs of temporary and permanent curation of artifacts, costs of tribal staff, legal and archaeological consultants and staff, and costs of appropriate ceremonies.
- Tribe releases the State of Washington from future liability or litigation.
- Tribe and WSDOT re-affirm “Walk Together” approach to future activities at the site.

Job Restarts in March 2004

- Work on site drainage had been underway since November with special monitoring and agreement
- Construction workers would start new work across the site in areas away from archaeology activity as sampling and recovery were completed.
- Area by area would be approved for construction by the archaeologists. Archaeology program was expected to take about fourteen weeks.

What did we know when the project was restarted following negotiation of Section 106 Memorandum of Agreement and Site Treatment Plan

- Areas A, B C and D of archaeological deposits had been delineated following the site assessment prepared in September
- The site was believed to contain both intact and historically disturbed artifact bearing shell midden reflecting several periods of occupation
- In 22 distinct locations, isolated human skeletal remains were identified apparently representing 21 individuals. None was an intact human burial and all had been disturbed by prior upset of the ground
- It was believed that additional human remains might be encountered during the archaeological data recovery, but there was no basis for predicting numbers or locations

Summer 2004 Archaeology and Burial Recovery

- Site drainage construction began under early limited agreement in mid-November, 2003
- First “intact human burial” was discovered in the course of the drainage work on March 29, 2004
- All summer the scope of archaeology expanded as significance of the site unfolded
- “Mid-course review” called for in site treatment plan was invoked in July to agree on expanded cultural data recovery
- Project gears up with as many as 60 - 80 archaeologists and tribal assistants working on cultural data recovery (Larson Anthropological Archaeological Services) and human burial recovery (LAAS and Western Shore)
- Growing tribal concerns for ancestral community; can the site be cleared of burials. Tribe began public tours program in July, 2004



Blocks C14 and C15 house posts



Block A6 early July



Mechanical screen

Construction Progress Moved Ahead In 2004 As Archaeology And Burial Recovery Process Allowed

By the time of construction shut-down in December, 2004:

Partial List

- | | |
|--------------------------------|-----------------|
| • Upper Floor Sheet Pile Walls | 87% complete |
| • Lower Floor Pile | 60% complete |
| • Upper Floor Excavation | 70% complete |
| • Upper Floor Slab | 30% complete |
| • Lower Floor Excavation | 20% complete |
| • Lower Floor Slab | 0% complete |
| • Drainage Pipes and Ponds | 92-95% complete |
| • Cofferd Dam Sheet Piles | 100% complete |
| • Cofferd Dam Tie Rods | 50% complete |

As many as 75 construction workers as well as six to 15 WSDOT staff and inspectors were on site

Archaeological process included almost all of the stipulated “data recovery” under the Site Treatment Plan and as the plan was extended during the course of the summer



Slab pour



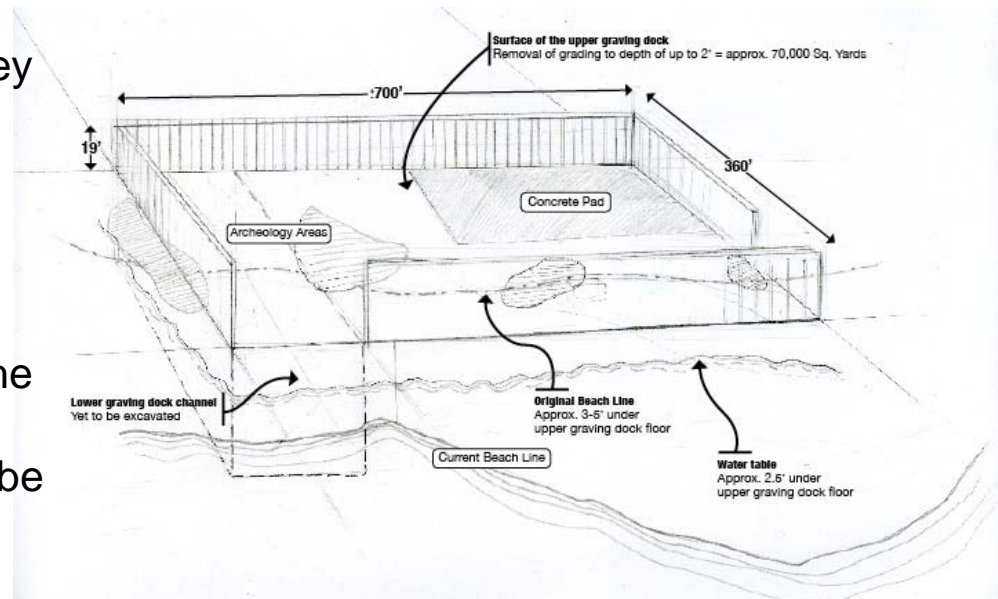
Coffer Dam Construction



Sheet pile installation

What To Do As Summer Construction Season Draws Into Fall?

- Mounting tribal concern about separation of ancestral community and spiritual issues. Should there be “no burial left behind?”
- Extensive discussions in August and September concerning whether scope of excavation should or could be extended to attempt to retrieve additional burials perhaps including fragments from disturbed fill. Stoppages of pile driving and other accommodations to recovery program needs
- Dispute over spatial scope of recovery required by the Site Treatment Plan. What had been agreed to as the “Area of Potential Effect” Did it matter?
- WSDOT through the Office of the Attorney General seeks (October 26, 2004) and receives (November 23, 2004) interpretation from FHWA under *Memorandum of Agreement* dispute resolution clause defining the vertical extent of the Area of Potential Effect in the Upper Graving Dock. FHWA urges WSDOT to continue to negotiate with Tribe



Public Attention To The Graving Dock Problem Mounts

- Seattle Times front-page story on November 21, 2004 colors the project in the public eye, reinforces segments of tribal opinion concerned about going forward
- Increased involvement of Congressional members and Olympia officials in considering project future
- Meeting on site on December 1, 2004 to examine the site, gather experts and request tribal proposal for additional burial recoveries in a program of bounded time and funds
- Statewide tribal Centennial Accord meeting with Governor Locke on December 9 hears tribal and WSDOT presentations
- Tribe writes WSDOT on December 10 asking that a different approach be found and project to build pontoons not go ahead
- Decision to abandon the pontoon project at Port Angeles Tse-whit-zen site announced by Governor Locke and Transportation Secretary MacDonald on December 21, 2004

Ancient village, graveyard torn apart by bridge project



Princess Shesha, daughter of the Tse-whit-zen tribe, stands in front of a storage area for artifacts. The artifacts are being stored in connection with reconstruction of the Hood Canal Bridge, a state Department of Transportation project.

HOOD CANAL BRIDGE PROJECT: Excavation of a staging area has unearthed the largest prehistoric tribal village ever found in the state. Now tribal and state officials are scrambling for a solution that preserves the sacred remains and saves the project.



Tribal members Shesha Packer and others search for artifacts and human remains in the staging area for the project area. A fraction of the project area is being sampled for artifacts.

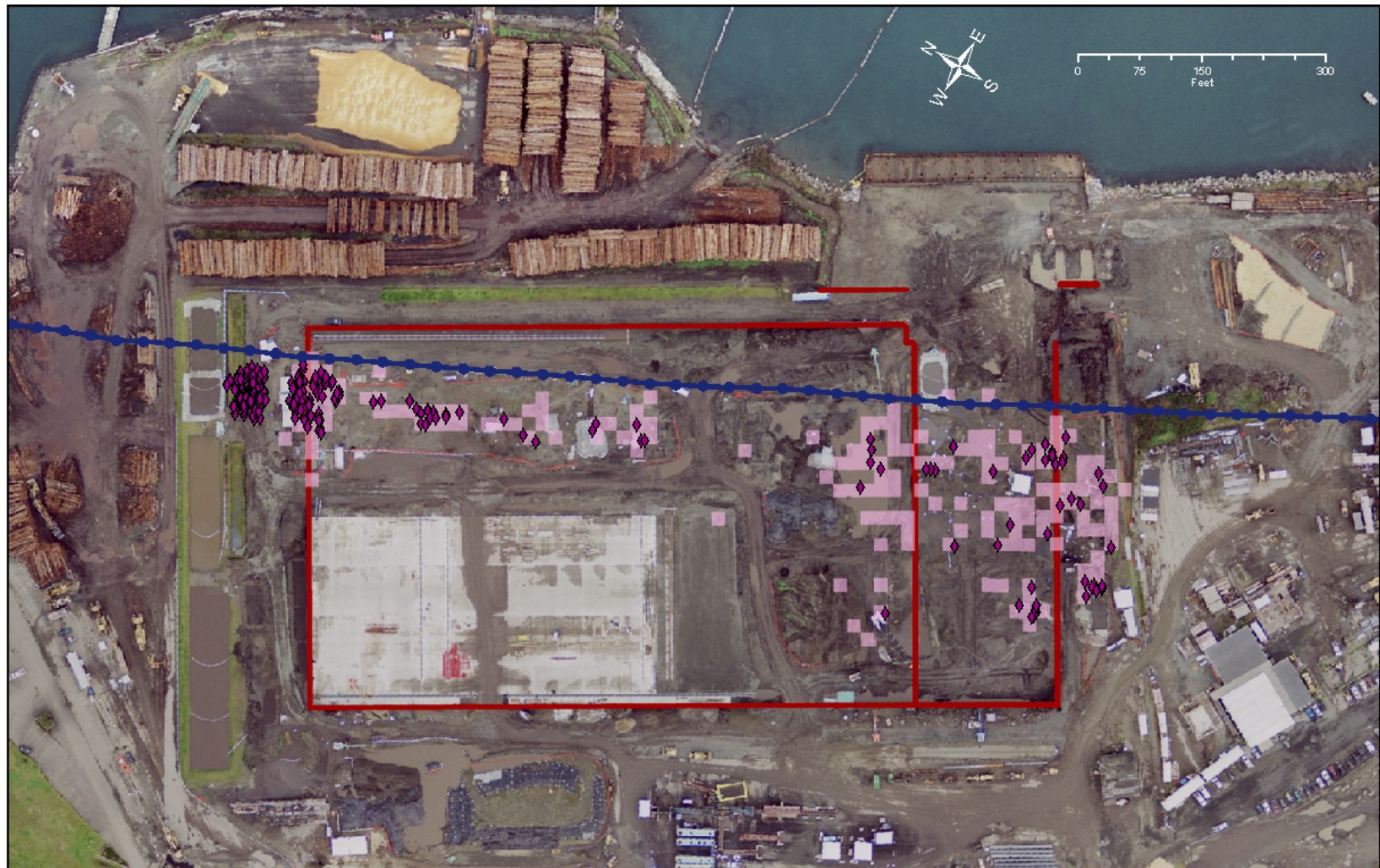
Tse-whit-zen site

BY LINDA M. HARRIS
Seattle Times staff reporter
PORT ANGELES — The state's largest prehistoric tribal village, a sacred site of the Tse-whit-zen tribe, is being torn apart by a bridge project. The discovery of the site, which includes a large number of burials, has caused a major delay in the project. The state Department of Transportation is now scrambling for a solution that preserves the sacred remains and saves the project.

More than 5,000 artifacts, including bone tools, stone tools, and even human remains, have been found. The discovery is causing anguish to both sides. The tribe is asking for more recovery, while the state wants to limit the tribe's insistence to search for more remains. At risk is the state's ability to replace the eastbound lanes of the Hood Canal Bridge, a critical project, state officials say.

Please see » GRAVES, A22

The Map Explains Why The Project Stopped



- ◆ Intact Burials (WSHS and LAAS)
- General Location of Fragmentary Human Remains
- Historic Shoreline (Approximate)
- Sheet Pile

Data Sources / Notes -

Site Features:

Air Photo:

Burials:

Human Remains Vicinities:

WSD OT Project Office 2/25/2005

WSD OT 12/15/2004

Larson Anthropological and Archeological Services, Ltd 3/2/2005
and Western Shore Heritage Services 2/22/2005

Based on findings to 12/7/2004 from Larson Anthropological and Archeological Services, Ltd and Western Shore Heritage Services.
(Isolates found in stockpiles were not mapped.)

Site Status 15 December 2004
Hood Canal Bridge Graving Dock Site
Port Angeles, Washington

Photo Date: Dec 15, 2004

Developing Plan B For Pontoon And Anchor Fabrication

- WSDOT's options reviewed by six-person review panel of national experts
- WSDOT conducted new site solicitation and review
 - Recommended three frontrunner sites on March 2, 2005
- Concurrent engineering support and contract negotiations with Kiewit-General
- Discussion of anchor fabrication option at Port Angeles
- High concern over schedule and cost impacts from the Plan B course
- Expert review panel
 - Endorsed Port Angeles choice
 - Endorsed suspension of work: "right thing to do from contracting and public policy standpoint"
 - Observed that the project surpasses nearly all other large projects in the country in terms of complexity matched to environmental stewardship needs
 - Recommended WSDOT proceed forward at the earliest possible date with retaining the current contractor and finding a new graving dock location
 - Recommended back-up strategy if contractor negotiations were unsuccessful

Status of the Project in March 2005

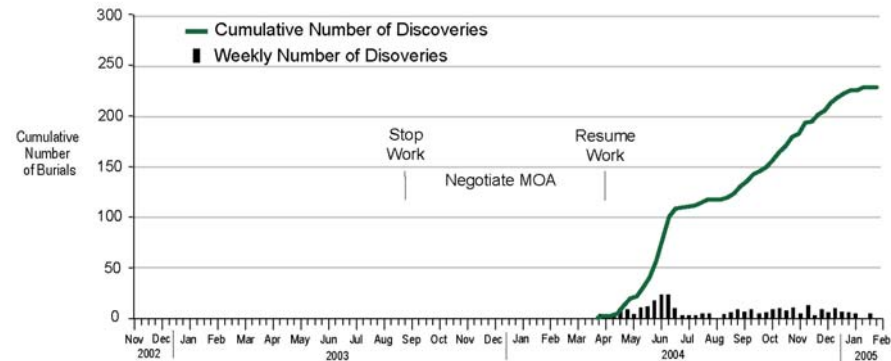
- Little support or expectation to resume new burial recoveries or other approach to return to graving dock construction for Hood Canal Bridge project
- Negotiations and discussion now involve several issues
 - “Plan B” program for graving facility: pontoons and/or anchors. Contractor engineering assistance. Pricing new work. Schedule and cost adjustments. Negotiation of contractor delay claim
 - Additional interim work on anchor systems for current bridge
 - Port Angeles site issues: re-burials, site conditions, curation, funding, resolution of Site Treatment Plan open items
 - Future concerns about ownership and use of site and implications for other waterfront development and community issues in Port Angeles and Clallam County
- Bridge site work on other project elements is on track, subject to work-arounds for anchor/pontoon delays

Scrutiny and Review

- WSDOT Report to Governor and Legislature now being prepared
- Performance Audit by Transportation Performance and Audit Board now commencing
- Possible review by FHWA
- Gray Notebook reporting on project topics
 - December 31, 2002(1)
 - June 30, 2003 (59)
 - September 30, 2003 (27)
 - December 31, 2003 (34)
 - March 31, 2004 (29)
 - June 30, 2004 (33,38)
 - September 30, 2004 (31,36)
 - December 31, 2004 (42)

Timeline of Discovery of Intact Human Burials at Graving Dock Site

(LAAS & Western Shore Combined; Total is 228)

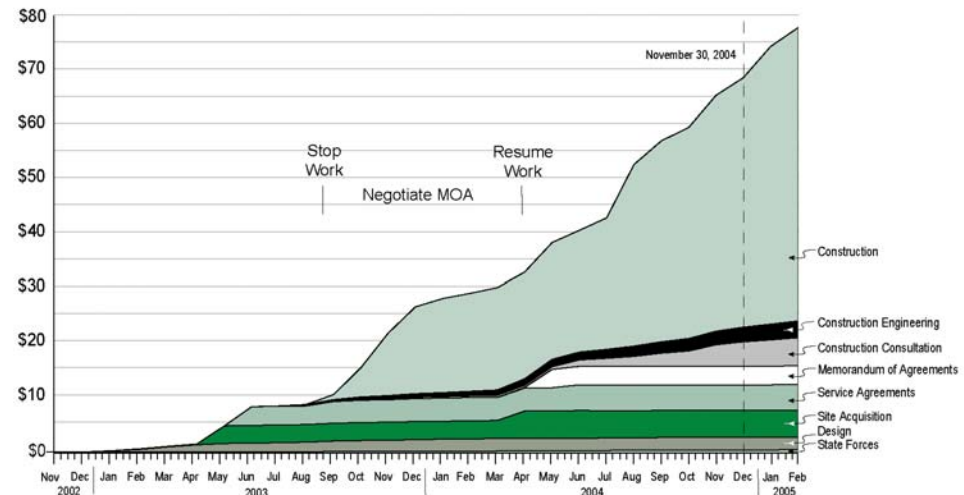


Source: Archeological Consultant

Hood Canal Graving Dock

Timeline of Estimated Accruals of Graving Dock Costs

Dollars in Millions



Estimated Costs - Provided

- * Additional costs for archaeology work (\$3.9 million)
- * Additional construction costs if graving dock is abandoned (\$4.2 million)

Estimated Costs - Not available

- * Additional archaeology work (screening volumes of excavated and stockpiled midden material)
- * Additional contractor payments outside requirements of original contract (to be negotiated)
- * Additional costs to preserve or replace materials on hand (to be determined by contractor selection)

Source: WSDOT Audit Office

Appendix: Historical Photographs Of Plant Site and The Spit Between False Dungeness Bay and the Lagoon



Puget Sound Timber and Mill Company, lumber mill, 1914.



1914 Asahel Curtis photo, UW collection



Appendix: Cultural And Scientific Significance Of The Tse-whit-zen Site

- The spiritual and heritage significance of the site to the Lower Elwha Klallam Tribe in particular and other Native Americans is immeasurable.
- The site in its historical and contemporary setting carries important information for native and non-native people in our modern communities.
- For scientific inquiry, the archaeological recovery of the site presents rich opportunities for improved understanding of Pacific Northwest Coast native cultures in distinct occupations of the site over many centuries.
 - Stone tools, bone tools, and technological organization
 - Habitation and other structures
 - Trading relationships
 - Social status and social organization
 - Food use, food processing, and economic organization
 - Spiritual artifacts and funerary practices
 - Cultural responses to epidemics and environmental change
- The archaeology also expands the understanding of 20th century land use at the site and documents construction and technology of early lumber mills.
- The geological history of the site, including sea level rise and tsunami impacts, will help the study of many other human and natural features of the Puget Sound environment.